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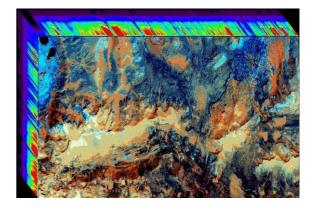
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AMRITA
VISHWA VIDYAPEETHAM
UNIVERSITY

National Seminar
on
Techniques and
Applications of
Hyperspectral Image
Analysis

April 19th & 20th, 2016

**Organized by
Department of
Electronics and Communication Engineering,
Amrita School of Engineering,
Amrita Vishwa Vidyapeetham, Coimbatore.**

About the University

Amrita Vishwa Vidyapeetham established under the guidance of Satguru Mata Amritanandamayi Devi, with its head quarters at Ettimadai, Coimbatore is one of the youngest educational institutions in India to have been granted the University status. Amrita Vishwa Vidyapeetham is one of the very few universities to have a multi-campus, multi-disciplinary character, offering under graduate, post graduate and research programmes. NAAC has accredited A Grade to Amrita University.

About the Department

Department of Electronics and Communication Engineering is offering technology oriented courses and creating manpower in the strategic areas well compatible with the industrial expectations. The department envisages the wide spectrum of areas including, Electronics circuits, Signal processing, Communication Technology, Biomedical Instrumentation and other applied areas focusing towards making brighter career path. Research is the prime focus for the faculty and students who put in their efforts to produce tangible outcomes in the form of publications, patents and funded projects.
 For details :
https://www.amrita.edu/school/engineering/coimbatore/electronics-and-communication/research

About the Workshop

Over the past decade hyperspectral imaging has matured into a powerful and a wieldy technology in remote sensing and other research areas. Hyperspectral imagery (HSI) provides detailed spectral information in each pixel. The narrow bands in HSI over a wide range of wavelengths can enable excellent discrimination capability for subtly different target classes compared to multispectral or other imaging modalities. The availability of this rich information in HSI can also be a drawback as this becomes a challenge to efficiently process them. This needs to be tackled by exploring and developing new methodologies for processing HSI data. The major application fields of hyperspectral image processing includes but not limited to

- **Geology** - Mineral detection, Cover homogeneity
- **Defense -** Target detection, Mine detection
- **Public safety -** Logistics &operations, Fire risk, floods
- **Regulation & Policy making**-Urban growth Settlements, population movements

Some of the widely studied problems in HSI community:
- Land cover classification.
- Target detection (Civilian and Military applications)
- Estimation of biophysical parameters of targets.
- Detection of soil properties such as moisture, organic content, and salinity
- Coastal monitoring, mapping forestry vegetation types, and mineral mapping.
- Detection and estimation of vegetation stress due to events like oil spill.
- Estimation of herbicide drifts and other diseases on agricultural crops.
- Estimation of the abundance and mixture of materials per pixel.
- Feature extraction/Selection.
- Supervised, unsupervised and Active Learning Methods under limited training sets.
- Spatial-Temporal classification methods
- Pixel un-mixing and compression

The challenges of HSI processing includes
- Hughes phenomenon of limited ground truth availability.
- Real time analysis and understanding.
- Development of algorithms that utilizes HPC and parallel processing capabilities.
- Need for integrated software/hardware solutions in hyperspectral imaging
- Development of processing algorithms on several types of parallel platforms, including commodity clusters of computers, large scale distributed systems, and specialized hardware architectures

Eligibility

Faculties from AICTE approved Engineering Colleges with relevant background. Candidates from industries and R & D organizations will also be considered. UG/PG students, research scholars and Industry persons in related discipline.
Registration fee for the different categories is as follows:

Category	Registration Fee (Service tax inclusive)
UG / PG students	Rs 750/-
Research Scholar	Rs 1200/-
Faculty member	Rs 1500/-
Industry delegate	Rs. 3000/-

How to apply

1) The Demand Draft should be drawn in favour of **"AMRITA CONSULTANCY"**, payable at **Kollam, Kerala**.
2) Fill in the online registration form available at http://google/forms/WDrXstU084
3) Send the Original DD along with the filled in registration form to the Coordinator of the Seminar. (address mentioned in the front page of the brochure) on or before April 5th, 2016.

Boarding and lodging

Boarding and lodging will be provided on payment basis, to the participants in university hostels inside the college campus on request.

Scheduled dates

Last date for Online Reg. **: April 5th, 2016**

Intimation regarding Selection**: April 10th, 2016**

Workshop Contents

- Introduction to Hyperspectral and Multispectral Image Processing
- LIDAR Image Processing
- Algorithms and application areas of hyperspectral image processing
- Advanced spatial statistical methods for high dimensional satellite data processing and analysis.
- Fuzzy sets, granular computing on hyperspectral images